

U.S. Patent Application Serial No. 10/531,952  
Amendment filed November 5, 2008  
Reply to OA dated October 10, 2008

**REMARKS**

Claims 1-14 are pending in this application, with claims 1 and 9-14 withdrawn from consideration. Claims 2-6 are amended herein. Upon entry of this amendment, claims 1-14 will be pending, with claims 1 and 9-14 withdrawn from consideration. The title of the invention is amended, the abstract is amended and the specification is amended. Entry of this amendment and reconsideration of the rejections are respectfully requested.

No new matter has been introduced by this Amendment. Support for the amendments to the claims and specification is discussed below.

**The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. (Office action paragraph no. 5)**

The Examiner states that the title should make reference to the lactic acid based resin, as well as additional descriptive requirements.

The objection is overcome by the amendment of the title as follows:

**"Lactic Acid-Based Resin Composition and Molded Articles Formed Therefrom"**

This amended title is consistent with the present claims, which require "a lactic acid based resin" as a component.

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**The abstract of the disclosure is objected to because it is not clear as to the various components of the resin composition and contains repetition as to the components and their properties.** (Office action paragraph no.7)

The abstract has been amended for clarity to address the issues raised by the Examiner. To avoid confusion, the reference letters "(A)" and "(B)" have been amended to "component (A)" and "component (B)." In addition, the redundant recitation of the composition of component (B) toward the end of the abstract has been deleted, and the phrase "in the resin composition" has been added to clarify the recitation regarding "content."

**The disclosure is objected to because of informalities.** (Office action paragraph no. 9)

The objection is overcome by the amendments to the specification. The paragraphs are referenced by the paragraph numbering in the published application, 2006/0148969A1, for correspondence to the Examiner's remarks. Paragraphs [0001], [0003], [0004], and [0014] to [0017] have been amended as suggested by the Examiner. Paragraph [0030], has been amended as follows:  
"... difficult to cause bleeding properties and exhibition of heat resistance can be balanced."

In addition to the above specification amendments, the specification has also been amended at paragraphs [0012], [0119], [0127] and Table 8, to correct errors. The amendment to paragraph [0012] is supported by page 8, line 7, to page 10, line 1, of the original specification. The amendment to Table 8 is supported by page 56, line 19, page 57, lines 2-8, 12-16, and 21-25, and page 53, lines 4-8.

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**Claim 2 is objected to because of informalities.** (Office action paragraph no. 12)

The Examiner states that (A) and (B) are used twice and that the numbering (i.e., labeling by lettering) is inconsistent and in no particular order.

The objection is overcome by the clarifying amendment to claim 2.

The original third clause of claim 2 recites a limitation on the amount of (A) + (B), which has been simplified by deleting the redundant definitions of (A) and (B), these now being referred to as "components (A) and (B)" to avoid confusion.

Component (C), recited in the original fourth clause of the claim, is now introduced in a new clause added between original clauses 2 and 3.

In addition, the limitation on the content of component (B), originally recited in the last clause of claim 2, has been moved to before the limitation on component (C).

**Claims 2 and 4-6 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement.** (Office action paragraph no. 14)

In paragraph no. 16, the Examiner states that claims 2 and 3 fail to adequately teach the composition of the resin.

The rejection is overcome by the amendments to the claims. Applicant submits that the issue here is actually one of lack of clarity and not of enablement, and the claims have been amended to clarify their recitations.

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The Examiner correctly indicates that (A) + (B) is 70-90%, (C) is 10 -30%, and (B) is 5-25%, but states that the range for (B) is unclear, asking if this is the percent of the total composition. The Examiner also refers to the filler in the claims.

Claim 2 has been amended to clarify the recitation by introducing (A), (B) and (C) in the first three clauses, and thereafter specifically referring to them as "component (A)," etc. The amendment clarifies that mass% limitations on components (A), (B) and (C) are the content "in the resin composition." This clarifying amendment is supported by the general disclosure of the specification that the composition of the "resin composition" is being described (see page 9, lines 7 and ff.), and, for example with reference to Table 1, where the sum of components (A), (B) and (C) is 100%.

The amendment to claim 3 clarifies that the recited limitation on mass% range of the resin composition refers to the content of component (D).

**Claims 2-6 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. (Office action paragraph no. 18)**

The rejection is overcome by the amendments to claims 2-6. Applicant submits that the issues here are the same as in the above objection to claim 2 and in the rejection under 35 U.S.C. 112, first paragraph, and the claims have been amended to resolve the issues raised by the Examiner.

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**Claims 2, 3, and 6-7 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 of copending Application No. 10/551,872. (US 2006/0194899) (Office action paragraph no. 24)**

Since this is a provisional rejection over a copending application, Applicant defers responding to the rejection.

**Claims 2-4 and 6-7 are rejected under 35 U.S.C. §102(b) as being anticipated by Ebato et al. (U.S. 5,403,897). (Office action paragraph no. 29)**

The rejection of claims 2-4 and 6-7 is respectfully traversed, and reconsideration is requested.

The Examiner cites Ebato for disclosing a lactic acid based copolyester. The Examiner apparently is stating that Ebato's lactide (A) (referred to as (1) in the Office action) can be polymerized to polylactide, a lactic acid based polymer. The Examiner also refers to Ebato's aromatic polyester (B) and aliphatic polyester (C), stating that these overlap with components (B) and (C) of the present claims.

However, Applicant submits that Ebato '897 discloses a process for producing a lactic acid-based copolyester, in which a lactide is reacted, in the presence of a ring-opening polymerization catalyst, with a polyester polymer comprising an aliphatic dicarboxylic acid unit and/or aromatic dicarboxylic acid (column 3, lines 35-39). The "lactide" is a compound formed by cyclic dimerization of lactic acid (column 7, lines 35-47). The resulting polymer therefore is a copolymer

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formed from the polyester polymer and the lactide. The exact structure of the copolymer is not explicitly stated in the reference, but is discussed somewhat at column 12, lines 24-35. The reference indicates that this is an "A-B-A type block copolymer."

By contrast, claim 2 of the present invention does not recite a copolymer, but rather recites a composition comprising components **(A) and (B)**, which are **different resins**. Component (A), the lactic acid based resin, is discussed in the specification on pages 10-13, and this is a resin that is primarily made from lactic acid, although copolymers with another hydroxycarboxylic acid and aliphatic diols are included (pages 11-12). Component (B) is specifically defined by Tg and  $\Delta H_m$  parameters, and this definition can only be referring to the pure component (B) before being mixed with component (A).

The components of the present invention may be seen to be **blended** to make the composition of the invention (see page 18, line 5, to page 19, line 7). See, for example, Example I-1 on pages 38, line 5, where resins "Nature Works 4032D' and 'Eastar Bio' were dry-blended ..., compounded using a ... biaxial extruder ..., and pelletized."

That is, the copolymerization reaction of Ebato '897 produces only **one resin**, the copolyester. This copolyester might be considered to be a lactic acid based polymer (i.e., component (A) of claim 2). However, Ebato '897 does **not** disclose component (B) or component (C) of claim 2. Components (B) and (C) in Ebato are simply starting materials for making Ebato's copolyester,

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and there is no disclosure of any composition in Ebato having components corresponding to components (A), (B) and (C) of present claim 2.

**Claim 5 is rejected under 35 U.S.C. §102(b) as being anticipated by Ebato et al. (U.S. 5,403,897) with support from the Sigma-Aldrich Catalog Search Site for molecular weight data. (<http://www.sigmaaldrich.com/catalog/search/AdvancedSearchPage>) and (<http://pubchem.ncbi.nlm.nih.gov/summary/summary.cgi?sid=24901459>, linked from Sigma-Aldrich Catalog page), the PubChem Substance database. (Office action paragraph no. 36)**

The rejection of claim 5 is respectfully traversed, and reconsideration is requested.

The Examiner cites Ebato as in the rejection of base claim 2, and states that Ebato "provides two options for an ester compound within his composition," referring to (a) column 16, line 60, to column 17, line 12, and (b) the use of polyester plasticizers. However, as argued above, Ebato does not disclose a mixture having components (A), (B) and (C) of base claim 2.

**Claim 8 is rejected under 35 U.S.C. §102(b) as being anticipated by Ebato et al. (U.S. 5,403,897) with support from the Differential Scanning Calorimetry page (<http://pslc.ws/macrog/dsc.htm>) presented by the Department of Polymer Science at the University of Southern Mississippi. (Office action paragraph no. 38)**

The rejection of claim 8 is respectfully traversed, and reconsideration is requested.

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The Examiner cites Ebato as disclosing that the mold should be heated at a temperature not lower than the crystallization temperature. However, as argued above, Ebato does not disclose a mixture having components (A), (B) and (C) of base claim 2.

**Claim 3 is rejected under 35 U.S.C. §103(a) as being unpatentable over Ebato et al. as applied to claim 3 above, and further in view of Wypych (sections included on talc, calcium carbonate, silica, clay, and diatomaceous earth).** (Office action paragraph no. 42)

The rejection of claim 3 is respectfully traversed, and reconsideration is requested.

The Examiner cites Wypych for general disclosures regarding the particle sizes of inorganic fillers. However, as argued above, Ebato does not disclose a mixture having components (A), (B) and (C) of base claim 2, and the additional citation of Wypych does not provide a suggestion or motivation for this limitation of the base claim.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicants' undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

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In the event that this paper is not timely filed, the applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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Enclosure: Petition for Extension of Time

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